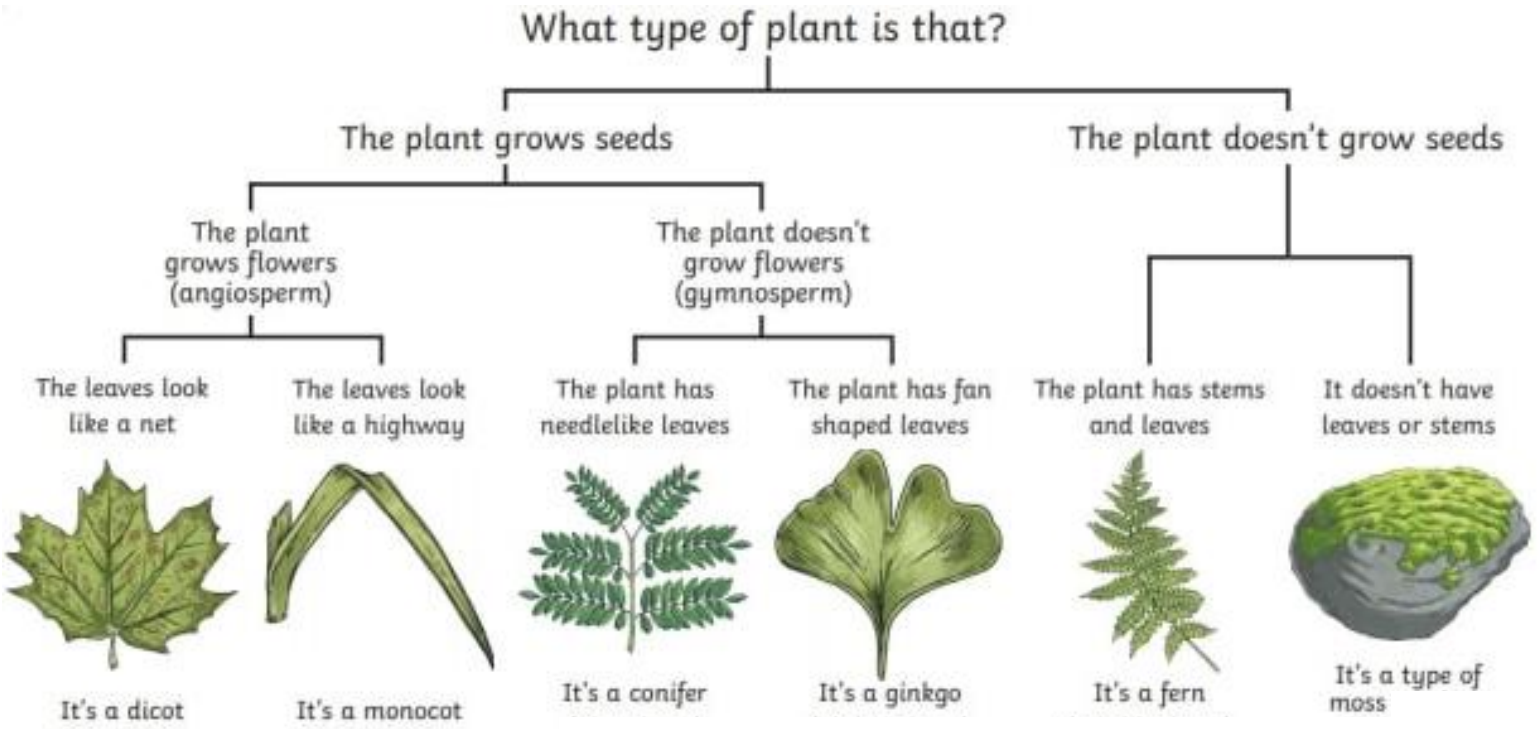
EPGL

Intriguing Plants: From Physiology to Biotechnology

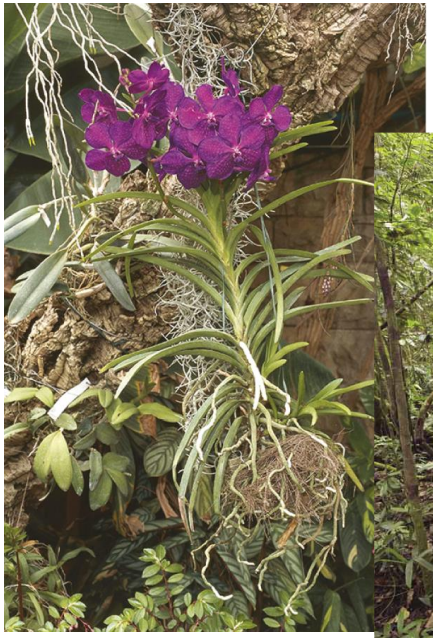
Dr. Amy Li

1) Classification of plants

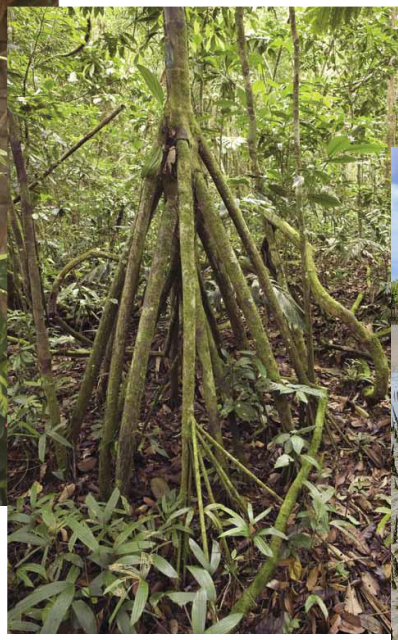
- Non-vascular ***vs*** seedless vascular ***vs*** seed plants



2) Plant cells & tissues



Aerial roots for absorption



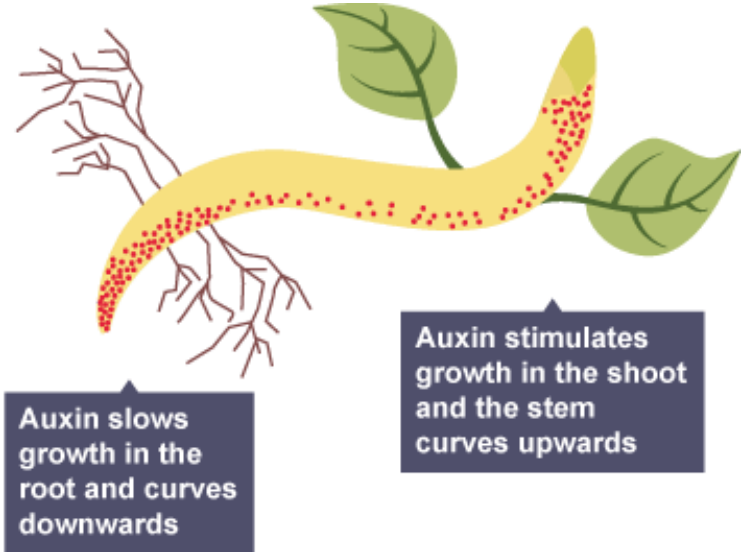
Prop roots for support

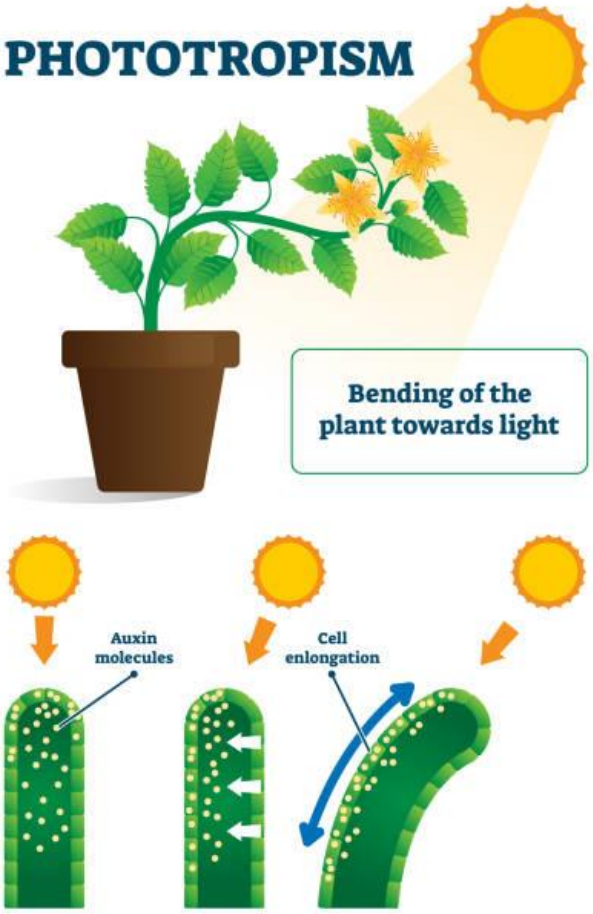
Spongy roots for aeration

Fleshy roots for storage

3) Plant growth & reproduction

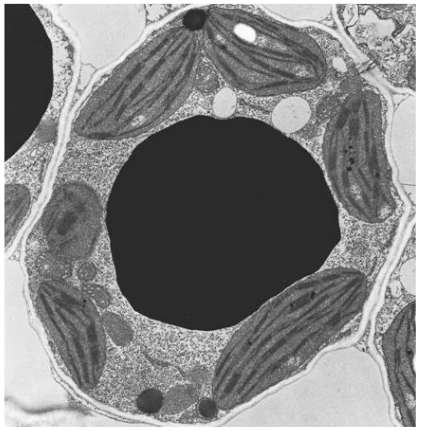
- **Tropism** = Growth in response to an environmental stimulus
  - Shoot with +ve phototropism
  - Root with –ve phototropism

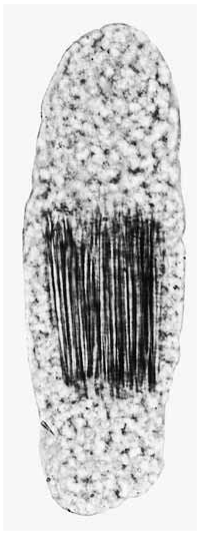


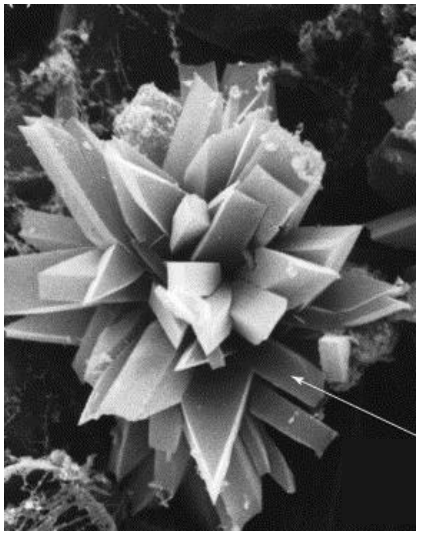


4) Plant defence

- Cells with specialized shape or content
  - Chemicals like tannin, resin & toxins
  - Sclereids wear down herbivore teeth
  - Calcium oxalate crystals hurt herbivores







5) Plants & society

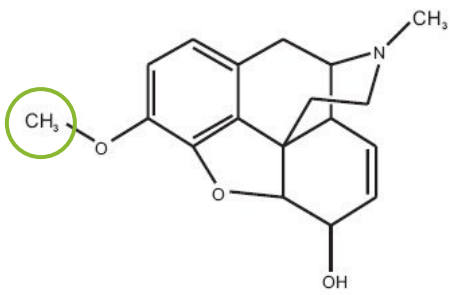
- **Pest control agents:** Nicotine, azadirachtin, strychnine
- **Medicines:** Morphine, codeine, paclitaxel


Tobacco


Neem


Strychnine


Opium poppy



Codeine


Pacific yew

6) Plant biotechnology

- **Totipotency** = Ability of a cell to divide & differentiate into an entire organism
- Regeneration needs proper nutrients, conditions & stimulants